⚠WARNING

Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

a. Do not operate or allow the oven to be operated with the door open.

b. Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
1. Interlock Operation
2. Proper Door Closing
3. Seal and Sealing Surfaces (Arcing, Wear and Other Damage)
4. Damage to or Loosening of Hinges and Latches
5. Evidence of Dropping or Abuse

c. Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, waveguide or transmission line, and cavity for proper alignment, integrity and connections.

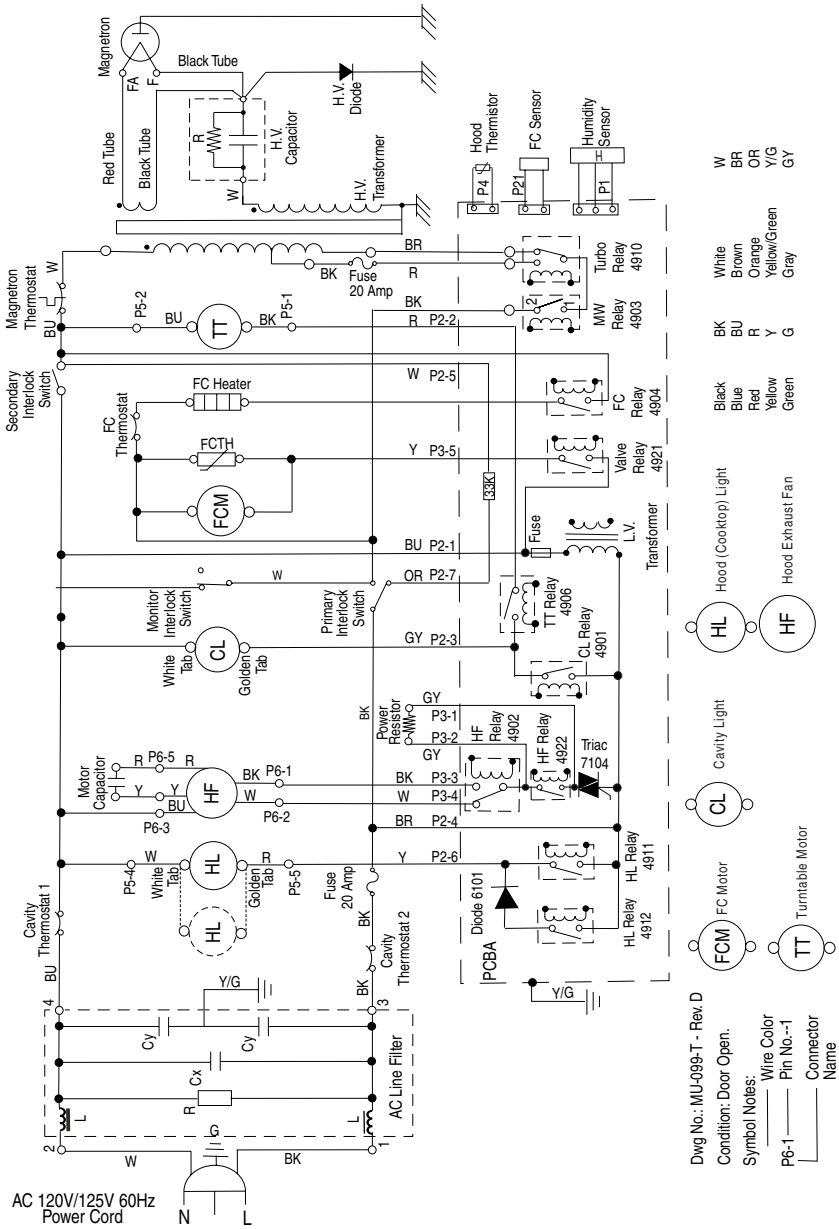
d. Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in service manual before the oven is released to the owner.

e. A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

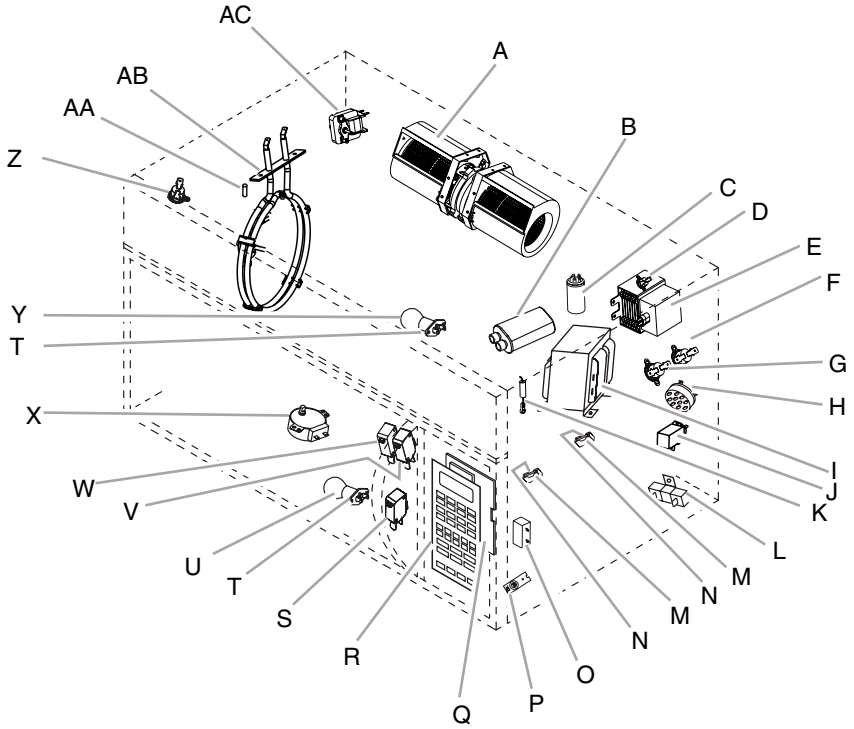
f. Do not attempt to operate the oven if the door glass is broken.

WIRING DIAGRAMS

Schematic Diagram



Parts Layout (not to scale)



A. Hood fan motor assembly
B. H.V. capacitor
C. AC line filter
D. Magnetron thermostat—opens at 257ºF (125ºC), closes at 185ºF (85ºC)
E. Magnetron
F. Cavity thermostat 1—opens at 275ºF (135ºC), closes at -31ºF (-35ºC)
G. Cavity thermostat 2—opens at 275ºF (135ºC), closes at -31ºF (-35ºC)
H. Humidity sensor
I. H.V. transformer
J. FC thermoactuator
K. H.V. diode
L. Power resistor
M. Fuse holders
N. Line fuses
O. Motor capacitor
P. Hood thermistor
Q. Electronic control
R. Touch panel
S. Secondary interlock switch
T. Light holders
U. Hood (cooktop) light
V. Monitor interlock switch
W. Primary interlock switch
X. Turntable motor
Y. Cavity light
Z. FC thermostat—opens at 329ºF (165ºC), closes at 257ºF (125ºC)
AA. FC thermistor
AB. FC ring heater
AC. FC motor

Primary, Secondary, and Monitor Interlock Switch Checkout Procedures

Switch	Check By	Door Open	Door Closed
Primary Interlock	**1.** Unplug microwave oven or disconnect power. **2.** Disconnect the wires at the Primary Interlock Switch. **3.** Check from the common terminal (black/brown wires) to the normally open terminal (black/white wires).	-	+
	1. Unplug microwave oven or disconnect power. **2.** Disconnect the wires at the Primary Interlock Switch. **3.** Check from the common terminal (black/brown wires) to the normally closed terminal (orange wire).	+	-
Secondary Interlock	**1.** Unplug microwave oven or disconnect power. **2.** Disconnect the wires at the Secondary Interlock Switch. **3.** Check from the common terminal (blue/white wires) to the normally open terminal (blue/red wires).	-	+

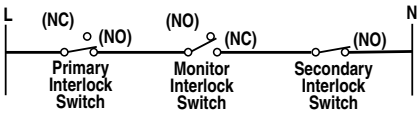
Primary, Secondary, and Monitor Interlock Switch Checkout Procedures

Switch	Check By	Door Open	Door Closed
Monitor Interlock	**1.** Unplug microwave oven or disconnect power. **2.** Disconnect the wires at the Monitor Interlock Switch. **3.** Check from the common terminal (white/white wires) to the normally closed terminal (blue/white wires).	+	-

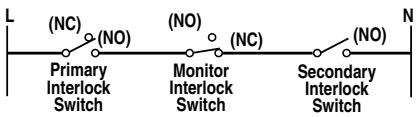
(+) Continuity (-) No Continuity

NOTE: These diagrams are not intended to show a complete circuit; they represent the position of switches during "DOOR OPEN" or "DOOR CLOSED" (continuity checks only).

Door Closed



Door Open



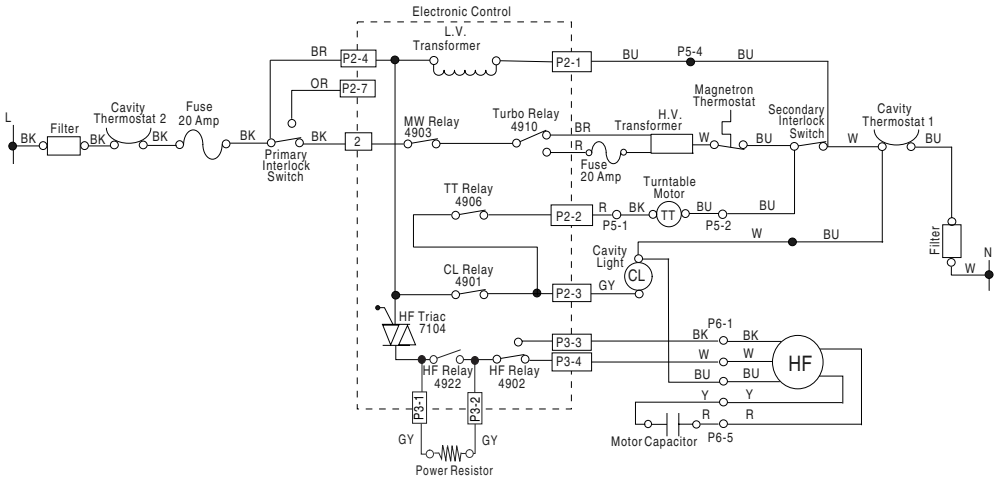
TROUBLESHOOTING

Do not continue with the diagnostics of appliance if the household fuse is blown, a circuit breaker is tripped or if there is less than 120-volt power supply at the wall outlet.

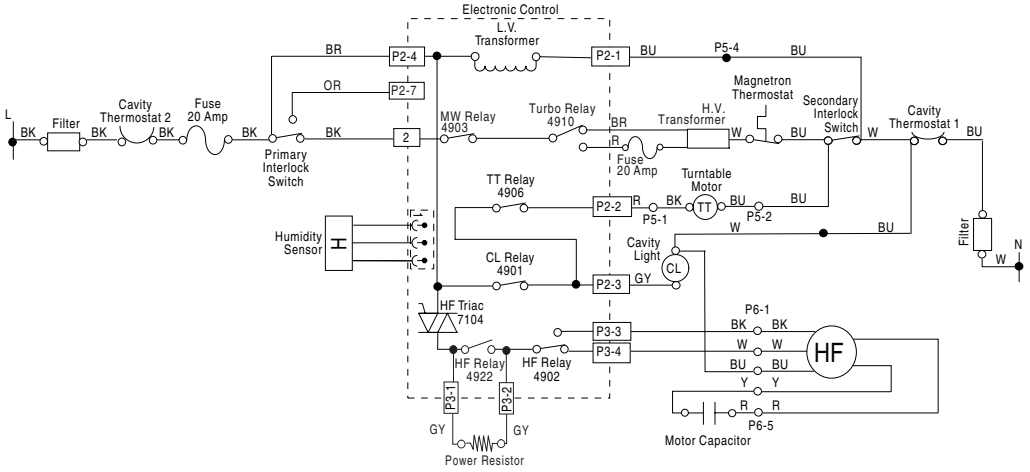
Complete the following steps before checking microwave oven circuitry:

1. Unplug microwave oven or disconnect power.
2. Discharge high-voltage capacitor and disconnect white wire from power transformer.
3. Check for loose wiring or incorrect wiring within microwave oven.
4. All testing must be done with an ohmmeter having a sensitivity of 20,000 ohms per volt DC or greater, and powered by at least a 9-volt battery.
5. All operational checks using microwave energy must be done with the microwave oven loaded with a minimum of 8 oz (250 mL) of water in a microwave-safe container.

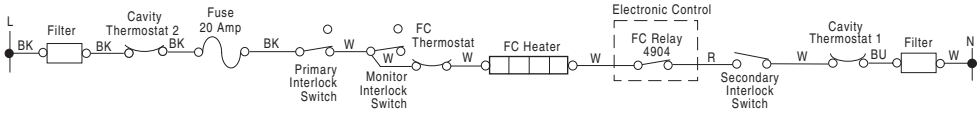
Microwave (Non-sensor) Cooking



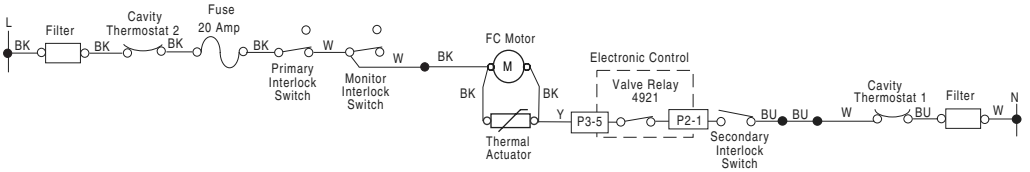
Microwave Sensor Cooking



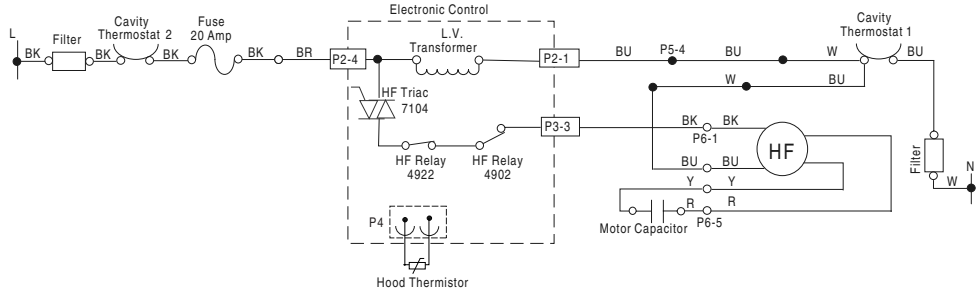
FC Heater Circuit



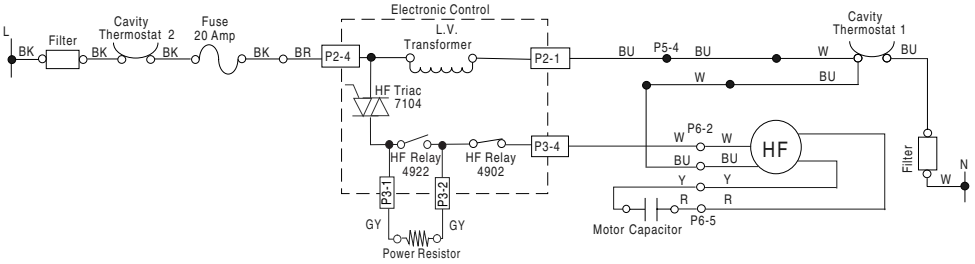
FC Motor and Thermal Actuator Circuit



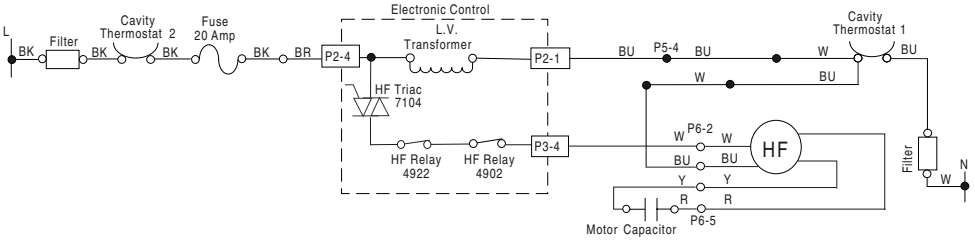
Hood Exhaust Fan on High Automatically



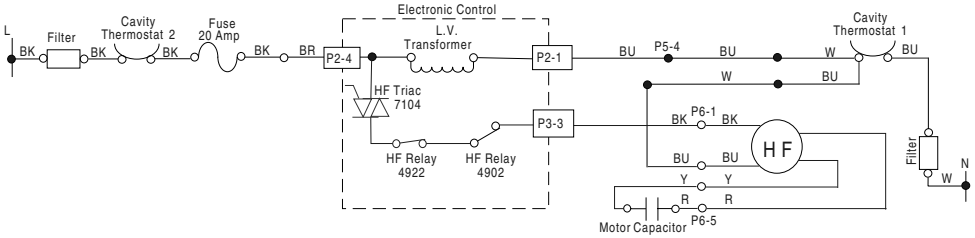
Hood Exhaust Fan on Low Speed Manually



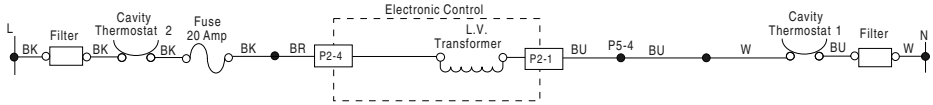
Hood Exhaust Fan on Medium Low and Medium Speed Manually



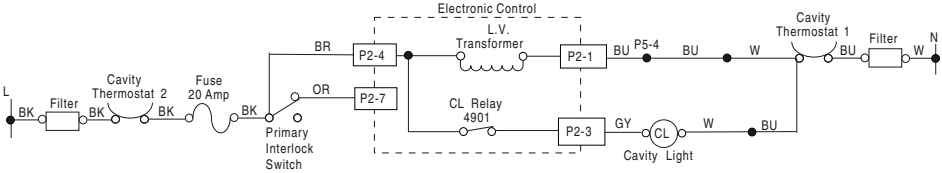
Hood Exhaust Fan on High / Medium Manually



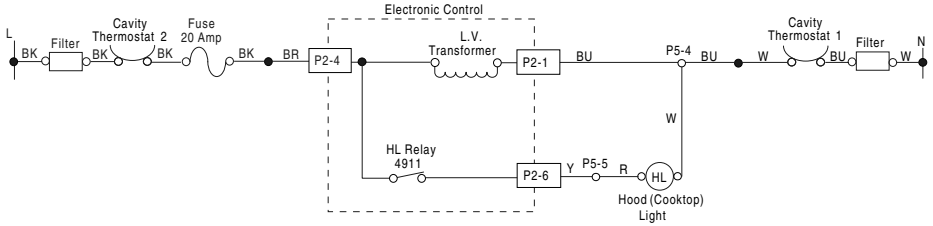
Microwave Oven Plugged In—Time of Day Displayed



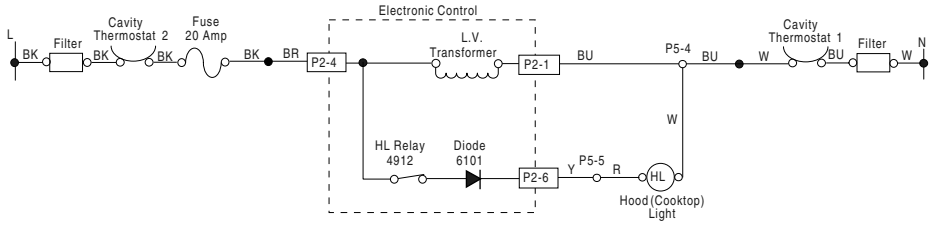
Door Open—Oven Cavity Light Is On



Cooktop Light on High



Cooktop Light on Low (Night Light)



Touch Panel and Electronic Control Test

The microwave hood combination is provided with a self-diagnostic routine that can be accessed through the touch keypad.

To initiate this routine:

1. Press and hold the STOP/CLEAR button while opening the door.
2. While still holding the STOP/CLEAR button, unplug the microwave oven for 2 seconds, then plug it back in. All VFD segments will be lit to indicate the test mode has been entered.
3. Release the STOP/CLEAR button and close the door.

NOTE: When the door is closed, if the STOP/CLEAR button is pressed during this diagnostic routine, you will exit the test mode.

Key Tables for Test Mode

Key Name	Function	Display	Buzzer
Start	-	-	1 beep
Setup Menu	NTC Sensor Check	NTC Message	1 beep
Light	-	Key 03	1 beep
Vent Fan	-	Key 04	1 beep
Timer Set/Off	-	Key 05	1 beep
Warm Hold	-	Key 06	1 beep
Clock	-	Key 07	1 beep
Turntable On/Off	-	Key 09	
Add 30 Sec	-	Key 20	1 beep
Cook Time	-	Key 21	1 beep
Cook Power	-	Key 22	1 beep
Cook	Test Humidity Sensor	Humidity Sensor Message	1 beep
Reheat	-	Key 24	1 beep
Defrost	-	Key 25	1 beep
Kids Menu	-	Key 26	1 beep
Soften/Melt	-	Key 29	1 beep
Convect Bake	Test FC Sensor	FC Sensor Message	1 beep
Convect Roast	-	Key 2B	1 beep
Steam/Simmer	-	Key 2D	1 beep
Popcorn	-	Key 30	1 beep

Key Name	Function	Display	Buzzer
Baked Potato	-	Key 31	1 beep
Dinner Plate	-	Key 32	1 beep
Quick Defrost	-	Key 36	1 beep
0	Microwave Oven On (1100 W) for 10 Seconds— Relay 4903 & Relay 4910-NO	MW TB	1 beep
1	Cavity Light On— Relay 4901	CL	1 beep
2	Cavity Light & Turntable On—Relay 4901 & Relay 4906	TT	1 beep
3	Microwave Oven On (1000W) for 10 Seconds— Relay 4903 & Relay 4910-NC	MW	1 beep
4	FC Heater On for 10 Seconds— Relay 4904	FC	1 beep
5	FC Fan On—Relay 4921	FC-FAN	1 beep
6	Cooktop Light On (High)—Relay 4911	HL_HIGH	1 beep
7	Cooktop Light On (Low)—Relay 4912	HL_LOW	1 beep
8	Hood Fan On (High Speed)— Relay 4902, Relay 4922 & Triac 7104	HF_HIGH	1 beep
9	Hood Fan On (Low Speed)— Relay 4902 & Triac 7104	HF_LOW	1 beep
Stop/Clear	Exit Test Mode to Standby	-	1 beep

Microwave Oven Power Output Test

1. Place 8 oz (250 mL) of lukewarm water in the center of the microwave oven.
2. Operate on HIGH power level for 2 minutes. Water should be hot.

NOTE: If the water takes longer than 2 minutes to heat, this may indicate either the operating voltage is lower than 110 volts or there is a problem with the microwave oven.

Failure Codes Indications

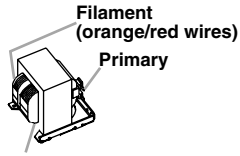
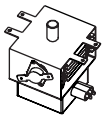
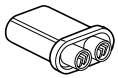
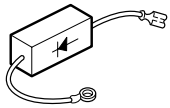
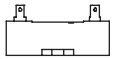
NOTE: Many of the problems listed in the chart below may be solved by power cycling: Unplug microwave oven or disconnect power. After 1 minute, plug in microwave oven or reconnect power.

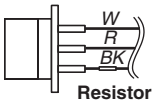
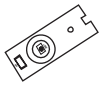
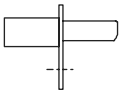
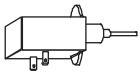
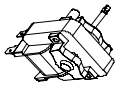
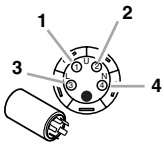
Display	Likely Failure Condition	Recommended Repair Procedure
Flashing colon ":"	Power failure	After a power failure, the colon ":" will be flashing. Press any key to end this indication. The colon will then be steady when in standby.
F2	Touch panel failure	**1.** Unplug microwave oven or disconnect power. **2.** Replace touch panel. **3.** Replace all parts and panels before operating. **4.** Plug in microwave oven or reconnect power. **5.** If problem persists, unplug microwave oven or disconnect power. **6.** Replace electronic control. **7.** Replace all parts and panels before operating. **8.** Plug in microwave oven or reconnect power.
F3C	Cavity temperature sensor failure	**1.** Unplug microwave oven or disconnect power. **2.** Check cavity temperature sensor connection. **3.** Replace the cavity temperature sensor. **4.** Replace all parts and panels before operating. **5.** Plug in microwave oven or reconnect power. **6.** If problem persists, unplug microwave oven or disconnect power. **7.** Replace electronic control. **8.** Replace all parts and panels before operating. **9.** Plug in microwave oven or reconnect power.
F3H	Humidity sensor failure	**1.** Unplug microwave oven or disconnect power. **2.** Connect a new humidity sensor to the electronic control (at P1). **3.** Replace all parts and panels before operating. **4.** Plug in microwave oven or reconnect power. **5.** If no failure code appears when starting sensor function, unplug microwave oven or disconnect power. **6.** Replace humidity sensor. **7.** Replace all parts and panels before operating. **8.** Plug in microwave oven or reconnect power. **9.** If failure code appears when starting sensor function, unplug microwave oven or disconnect power. **10.** Replace electronic control. **11.** Replace all parts and panels before operating. **12.** Plug in microwave oven or reconnect power.
F6	MW relay	**1.** Unplug microwave oven or disconnect power. **2.** Check the cable to Relay 4903. **3.** Check to see if the relay (4903 on relay electronic control) contact has welded closed. **4.** Replace all parts and panels before operating. **5.** Plug in microwave oven or reconnect power. **6.** If problem persists, unplug microwave oven or disconnect power. **7.** Replace electronic control. **8.** Replace all parts and panels before operating. **9.** Plug in microwave oven or reconnect power.

Component Tests

IMPORTANT:

- Unplug microwave oven or disconnect power.
- Remove the lead wires from the related component before conducting any of the following tests.
- Discharge the high-voltage capacitor and remove the lead wires from the primary winding of the high-voltage transformer before conducting any of the following tests.
- All operational checks using microwave energy must be done with the microwave oven loaded with a minimum of 8 oz (250 mL) of water in a microwave-safe container.
- Conduct a microwave energy test after performing any tests or repairs to the microwave oven.
- Check that all wire leads are in the correct positions before operating the microwave oven.
- Grasp wire connectors when removing the wire leads from microwave oven parts.
- All testing must be done with an ohmmeter having a sensitivity of 20,000 ohms per volt DC or greater, and powered by at least a 9-volt battery.

Components	Test/Results
H.V. Transformer  **Filament (orange/red wires)** **Primary** **Secondary (white wire - ground to transformer case)**	**1.** Unplug microwave oven or disconnect power. **2.** Remove wire leads. **3.** Measure resistance: ■ Primary winding: Less than 0.5 ohm (approximate) ■ Secondary winding: 90 ohms (approximate) ■ Filament winding: 0 ohms **4.** Measure resistance: ■ Primary winding to grounding: Normal: Infinite ■ Filament winding to grounding: Normal: Infinite
Magnetron 	**1.** Unplug microwave oven or disconnect power. **2.** Remove wire leads. Check that the seal is in good condition. **3.** Measure resistance: ■ Filament terminal: Normal: Less than 1 ohm **4.** Measure resistance: ■ Filament to chassis: Normal: Infinite
H.V. Capacitor 	**1.** Unplug microwave oven or disconnect power. **2.** Remove wire leads. **3.** Measure resistance: ■ Terminal to terminal: Normal: Momentarily indicates several ohms, and then gradually returns to infinite. ■ Terminal to case: Normal: Infinite
H.V. Diode 	**NOTE:** Some inexpensive meters may indicate infinite resistance in both directions. **1.** Unplug microwave oven or disconnect power. **2.** Measure resistance: ■ Forward: Normal: Continuity; Abnormal: Infinite ■ Reverse: Normal: Infinite; Abnormal: Continuity
Turntable Motor 	**1.** Unplug microwave oven or disconnect power. **2.** Remove wire leads. **3.** Measure resistance: ■ Normal: 2.7k-3.8k ohms (approximate) ■ Abnormal: Infinite
Motor Capacitor 	**1.** Unplug microwave oven or disconnect power. **2.** Remove wire leads. **3.** Measure resistance: ■ Normal: Momentarily 0 ohms, then goes to infinite ■ Abnormal: Infinite

Components	Test/Results
Humidity Sensor 	**1.** Unplug microwave oven or disconnect power. **2.** Remove the 3-pin connector from the electronic control (P1). **NOTE:** Do not remove the attached resistor, which is used for internal resistance calibration. **3.** Measure resistance across pins 1 & 3, and across pins 2 & 3: ■ Normal: 2.8k ohms (approximate) at 77ºF (28ºC) +/- 18ºF (-10ºC) ■ Abnormal: Infinite
Hood Exhaust Fan Motor 	**1.** Unplug microwave oven or disconnect power. **2.** Remove wire leads. **3.** Measure resistance: ■ High Speed—Normal: Red (R) and Blue (BU) wires: 80 ohms (approximate); Blue (BU) and Black (BK) wires: 35 ohms (approximate); Abnormal: Infinite ■ Low Speed—Normal: Red (R) and Blue (BU) wires: 80 ohms (approximate); Blue (BU) and White (W) wires: 60 ohms (approximate); Abnormal: Infinite
Hood Thermistor 	**1.** If “NTC SHORT, CALL FOR SERVICE” or “NTC OPEN, CALL FOR SERVICE” scrolls on display, unplug microwave oven or disconnect power. **2.** Measure resistance: ■ Normal: 10k ohms +/- 5% at 77ºF (25ºC) ■ Abnormal: Infinite/continuity
FC Ring Heater 	**1.** Unplug microwave oven or disconnect power. **2.** Remove wire leads. **3.** Measure resistance: ■ Normal: 9 +/- 3 ohms ■ Abnormal: Infinite
FC Thermistor 	**1.** Unplug microwave oven or disconnect power. **2.** Remove wire leads. **3.** Measure resistance: ■ Normal: 230k +/- 20% ohm at 77ºF (25ºC) ■ Abnormal: Infinite
FC Thermoactuator 	**1.** Unplug microwave oven or disconnect power. **2.** Remove wire leads. **3.** Measure resistance: ■ Normal: 1.2k +/- 0.5k ohms ■ Abnormal: Infinite
FC Motor 	**1.** Unplug microwave oven or disconnect power. **2.** Remove wire leads. **3.** Measure resistance: ■ Normal: 20 +/- 2 ohms ■ Abnormal: Infinite
AC Line Filter 	**1.** Unplug microwave oven or disconnect power. **2.** Remove wire leads. **3.** Measure resistance: ■ Normal: 1-3 (coil): Less than 1 ohm; 2-4 (coil): Less than 1 ohm; 3-4 (resistor): 550k-800k ohms ■ Abnormal: Infinite
Thermostats **FC Thermostats** **Cavity Thermostats** **Magnetron Thermostat**	**NOTE:** Refer to “Parts Layout” for opening and closing temperatures. **1.** Unplug microwave oven or disconnect power. **2.** Remove wire leads. **3.** Measure continuity: ■ Normal: Continuity ■ Abnormal: Infinite

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